REMARKS

Claims 21-27 and 49-65 are pending in this application. By this Amendment, claims 50-65 are added corresponding to claims 30, 32-34, 36-40 and 42-48 that were cancelled in the January 14, 2005 Substitute Amendment. No new matter is added.

Reconsideration based on the following remarks is respectfully requested.

I. Claims 21-27 and 49 Define Patentable Subject Matter

The Office Action rejects claims 21, 22, 25-27 and 49 under 35 U.S.C. §103(a) over U.S. Patent 5,668,551 to Littman *et al.* (hereinafter "Littman") in view of U.S. Patent 5,779,937 to Sano *et al.* (hereinafter "Sano") and U.S. Patent 5,754,262 to Lengyel. The Office Action further rejects claim 23 under 35 U.S.C. §103(a) over Littman in view of Sano and Lengyel and further in view of U.S. Patent 5,847,506 to Nakayama *et al.* (hereinafter "Nakayama"). The Office Action further rejects claim 24 under 35 U.S.C. §103(a) over Littman in view of Sano and Lengyel and further in view of U.S. Patent 6,091,382 to Shioya *et al.* (hereinafter "Shioya"). These rejections are respectfully traversed.

In particular, the Office Action asserts that Littman teaches a pitch distance P between adjacent organic electroluminescent elements independently emitting light. The Office Action further asserts, on page 4, that Littman inherently teaches simultaneous emission by the elements. Applicants argue that mere lack of preclusion of a recited feature in a prior art reference does not thereby indicate teaching that feature, particularly absent any motivation to provide or suggest such teaching.

The Office Action also asserts, on page 4, that Littman permits image resolution as high as 100 pixels per millimeter or a pitch of 0.1 mm. The Office Action further asserts that Sano teaches an electroluminescent device to backlight a display and the electroluminescent elements emit light simultaneously thereby. The Office Action continues, on page 5, by asserting that Lengyel teaches separation distance D between the display element and a

backlight assembly of 1 to 5 mm, that "it is inherent that D... as taught by Lengyel would be 10 times the distance P, as taught by Littman...", and that this combination would have been obvious to one of ordinary skill in the art.

In reply, Applicants assert Lengyel discloses a liquid crystal display with a high intensity backlight source and a contrast enhancement filter, whereas Littman and Sano represent organic electroluminscent (EL) elements. Such combinations for pitch distances in one technical field with separation distances in a non-analogous technical field are clearly not inherent in the references, and therefore would not have been obvious to artisans of ordinary skill.

Moreover, the separation distance of Lengyel with its high intensity backlight being between 1 and 5 mm has no relationship to the pixel pitch of Littman with organic EL elements being about 0.1 mm. The Office Action derives the latter values from exemplary values expressed in Littman. However, Littman provides no teaching that any of these exemplary or derived dimensions are necessary to enable Littman's described EL device. Further, there is no teaching or suggestion in either Lengyel or Littman that some undefined relationship might conceivably be inferred between Lengyel's separation distance and the derived pitch of Littman by one of ordinary skill in the art. Thus, Applicants respectfully submit that the Office Action fails to satisfy this burden using the applied references or their combination.

Applicants assert that Littman, Sano and Lengyel, alone or in combination, do not teach or suggest a light source including a plurality of organic electroluminescent elements arrayed in a common plane parallel to a support surface of a substrate, the plurality of organic electro-luminescent elements emitting light simultaneously, P being a distance in the common plane between centers of adjacent organic electroluminescent elements and D being a distance between each organic electroluminescent element and a display surface of a liquid

crystal display element, and a relationship between D and P being such that D is 10 times P or more, as recited in claim 21.

Instead, Littman discloses a method of forming an organic electroluminescent (EL) device 100. In particular, Littman teaches a transparent substrate 110 having column electrodes 120 overlaid by organic EL media 130 that are overlaid by row electrodes 140. The electrodes 120 and 140 are laterally spaced for electrical insulation (col. 3, lines 26-63 and Fig. 1 of Littman).

Also, Sano discloses an organic electroluminescent device including a chelate compound. In particular, Sano teaches a glass substrate 1 having an ITO electrode 2 of 2000Å thickness (col. 9, lines 54-67 and Fig. 1 of Sano).

Further, Lengyel discloses a liquid crystal display (LCD) 100 having a contrast enhancement filter to operate under bright ambient conditions. In particular, Lengyel teaches a backlit assembly 102 separated from a display element 103 by 1 to 5 mm, and the display element 103 having linear polarizers 112, 120. Lengyel further teaches a contrast enhancement assembly 105 with a filter 130 that absorbs a portion of light outside the visible spectrum (col. 4, lines 27-34, col. 5, lines 45-49, col. 6, lines 4-18 and Fig. 1 of Lengyel).

Applicants respectfully assert that persons of ordinary skill in the art lack any motivation to combine disclosures directed to organic electroluminescent (EL) devices and those directed to liquid crystal displays. These technologies and their applications can be readily distinguished.

For example, Lengyel teaches the LCD 100 with for a high intensity backlight source, preferably at least 5000 fL (foot-lumens) of luminance (col. 4, lines 34-36 of Lengyel). In contrast, Applicants observe that organic EL elements should emit light as high as 10,000 cd/m^2 (candela/sq-meter) or less than 3000 fL (page 2, lines 10-11 in the specification). Clearly, organic EL devices would typically be inadequate for the application in Lengyel.

In addition, Lengyel describes an air gap 110 between the backlight 102 and the display element 103 for augmenting heat transfer (col. 5, lines 24-32 of Lengyel). However, such measures might conceivably be required for a high intensity light source, whose total efficiency is degraded by linear polarizers 112. In contrast, Applicants' claimed features are directed to thermal management for organic EL devices, not for LCDs. Lengyel provides no teaching or suggestion to modify its teachings to achieve this effect.

Further, while Littman and Sano are directed to organic EL devices, neither of these applied references addresses thermal management of the light emitters. Organic EL devices may be subject to chemical degradation caused by excess heat, which is mitigated by Applicants' claimed features.

Also, Littman teaches that the spacing between the donor sheet and the EL substrate may be held apart by "as large as a few times" the sub-pixel pitch (col. 5, lines 56-40 of Littman). In contrast, Applicants' claimed features are directed to D being ten times P or more. Claim 21 is thus directed to at least an order of magnitude dimensional difference, whereas Littman teaches merely a modest factor. Sano offers no suggestion to the contrary regarding this distance relationship.

Applicants submit that there is no motivation to combine features related to the organic EL media of Littman and/or the chelate device of Sano with the LCD linear polarizers of Lengyel. As discussed above, the light intensity required for Lengyel exceeds that available for organic EL devices. Similarly, the applied references fail to teach or suggest the features recited in dependent claims 22 and 25-27. Thus, the Office Action has not established a *prima facie* case of obviousness.

Nakayama does not compensate for the deficiencies of Littman, Sano and Lengyel outlined above for claim 21. Nor does Nakayama teach, disclose or suggest the additional features for optical micro-resonators recited in claim 23. Instead, Nakayama discloses an

organic light-emitting device with successive layers including a glass substrate 1, a reflective film 2, a conductive film 3, a hole injecting layer 4, a light emitting layer 5, an electron injecting layer 6, and electrodes 7. Nakayama provides no teaching or suggestion of a micro-resonator structure. In particular, Nakayama teaches that the reflective film 2 generates an electromagnetic wave of resonant frequency (col. 3, line 61 – col. 4, line 10, col. 4, lines 51-64 and Fig. 1 of Nakayama).

The Office Action asserts, on pages 7-8, that Nakayama teaches organic EL elements comprising optical micro-resonators. As explained above, Applicants respectfully disagree and submit that a resonating reflective film is not analogous to optical micro-resonators that serve as the organic EL light source. The Office Action further asserts that it would have been obvious to combine the micro-resonators of Nakayama with the light source of Littman, Sano and Lengyel. However, any combination of Littman, Sano and Nakayama fails to teach or suggest all of Applicants' claimed features. As discussed earlier, Applicants further assert further that motivation is lacking to combine these teachings with Lengyel, and that even such a combination would lack all of Applicants' features in independent claim 21, and also the dependent claims.

In addition, Shioya does not compensate for the deficiencies of Littman, Sano and Lengyel outlined above for claim 21. Nor does Shioya teach, disclose or suggest the additional features for anode and cathode striped patterns recited in claim 24. Instead, Shioya discloses a display device having low pixel cross-talk. In particular, Shioya teaches an organic electroluminescent element 11 in which striped cathode electrodes 13 are formed on a transparent substrate 12, and a photoconductive layer 14 covers the substrate 12 and electrodes 13. Shioya further teaches an electron transport layer 15, a luminescent layer 16 and an anode electrode 17 are sequentially stacked on the layer 14 (col. 5, line 59 – col. 6, line 12 and Fig. 1 of Shioya). Also, Shioya teaches consecutive drive voltage pulses

according to element color (col. 13, lines 11-24 of Shioya). As discussed above, Applicants' claimed features provide for electric current applied in a simultaneous pulse mode for the electrodes, which Shioya fails to teach or suggest.

While Shioya provides a timing chart for applying drive voltages between adjacent cathode nodes, these pulses are provided in staggered consecutive order for the respective EL elements according to color (col. 12, line 57 – col. 13, line 39 and Fig. 17 of Shioya). In contrast, Applicants' claimed features provide for electric current applied in a simultaneous pulse mode for the electrodes, and for intensity control by amplitude variation of the current. Shioya fails to teach or suggest such features directed to simultaneity in current application.

The Office Action also asserts, on page 9, that Shioya teaches electroluminscent elements formed at intersections of an anode in a striped pattern and a cathode in a striped pattern, and that it would have been obvious to combine these teachings to reduce cross-talk among pixels. Applicants argue that one of ordinary skill in the art would not find any inherent motivation to combine these references, particularly when Shioya addresses issues unrelated to the advantages of Applicants' claimed features.

A *prima facie* case of obviousness for a §103 rejection requires satisfaction of three basic criteria: there must be some suggestion or motivation either in the references or knowledge generally available to modify the references or combine reference teachings, a reasonable expectation of success, and the references must teach or suggest all the claim limitations (MPEP §706.02(j)). Applicants assert that the Office Action fails to satisfy these requirements with Littman, Sano, Lengyel, Nakayama and Shioya.

For at least these reasons, Applicants respectfully assert that independent claim 21 is patentable over the applied references. Dependent claims 22-27 and 49 are likewise patentable over the applied references for at least the reasons discussed as well as for the

additional features they recite. Withdrawal of the rejections of claims 21-27 and 49 under 35 U.S.C. §103(a) is respectfully requested.

II. Added Claims 50-65 Define Patentable Subject Matter

Applicants further argue that the cited references, including those applied in the March 10, 2004 Office Action, do not teach or suggest a display device including, *inter alia*, a light source having an organic electroluminescent element (20), a liquid crystal display element (21), an optical system (23) that includes a holographic combiner (42) and that enlarges and displays an image displayed in the display element, the organic electroluminescent element having a luminescent region having substantially the same size as that of a display area of the display element, and a pulse current supply source (25) to the organic electroluminescent element, as recited in claim 50, and similarly recited in claim 63. Also, the applied references fail to teach or suggest a similar display device having first, second and third organic electroluminescent elements, as recited in claims 53, 58 and 64.

For at least these reasons, Applicants respectfully assert that the independent claims 50, 53, 58, 63 and 64 are patentable over the prior art. These reasons also extend to claims 51, 52, 54-57, 59-62 and 65 based on their dependence from the independent claims, as well as for the additional features they recite. Therefore, all the claims are in condition for allowance.

III. Conclusion

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

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